



AD606 Evaluation Board

General Considerations

The AD606 Evaluation Board is designed to enable rapid evaluation of the major features of the AD606. It comes assembled in a configuration designed for high frequency (RF) operation, but can be modified to operate at audio frequencies.

The AD606 is designed to operate from a single +5V supply. Although the absolute maximum supply voltage is +9V, the part is characterized at +5V and the calibration of some of its characteristics are a function of the supply voltage. This is actually a desirable feature in some battery operated equipment that uses an A/D converter.

In such systems the battery voltage, or some known fraction of it, is used as the full scale reference to the A/D converter to save on power, weight and cost. As the battery voltage falls toward the end of its life, so too does the reference voltage. To compensate for this, the scaling of the input devices to the A/D changes in proportion to supply voltage to accommodate the changes in the reference voltage.

For accurate analysis, it is thus recommended that the supply voltage be set quite accurately. (Refer to data sheet Fig. 13). In systems that are not battery operated, either the supply voltage should be well regulated, or the supply voltage should track the A/D reference as in battery operated systems.

The input is terminated with a 49.9Ω resistor and coupled to INHI by C401, while INLO is grounded through a capacitor (C402). This configuration is recommended for driving from a 50Ω , single-ended source. The differential inputs to the device must be ac-coupled to allow proper operation of the feedback offset-nulling circuitry internal to the device.

The typical differential input resistance is 2.5K. Along with C401 and C402 values of 100 pF, the lower -3 dB frequency of the ac coupling is about 640 kHz. The AD606 data sheet offers suggestions for logarithmically scaled detection at lower frequencies.

Slope and Intercept Adjustment

R403 is provided as a means for adjusting the logarithmic intercept and R406 is for adjusting the slope. Either of these adjustments can be left out for non-critical applications. The data sheet explains how to adjust these pots under the heading Basic RSSI Applications.

Outputs

The final limiter output is a differential pair of currents that must be supplied from the V+ supply. They are brought out as signals LMLO and LMHI on pins 8 and 9 of the AD606. LMHI is connected directly to V+ while LMLO (Pin 8) is connected to V+ by R402, a 200 Ω resistor to develop a voltage waveform. The limiter output signal at this node is observable on TP401. The limiter outputs are sometimes used as inputs to a detector in frequency modulated or phase modulated systems.

The logarithmic output or VLOG is available at either TP402 or at output BNC J404. In order to limit the power consumption of the device, the drive capability of the amplifier driving this out is not capable of driving a 50 Ω back-terminated cable. R407 (49.9 Ω) is not a back terminating resistor for cable driving but is included to prevent oscillation when driving capacitive loads. In order to drive a 50 Ω cable, a high input impedance buffer should be used.



AD606 Evaluation Board Schematic

